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**Heavy Duty Brake Manufacturers Council**

A Product Line Group of  
Motor & Equipment  
Manufacturers Association

## Heavy Duty Brake Manufacturers Council's Comments

In response to:

NHTSA docket No. 99-6550 - 6

"Heavy Vehicle Antilock Brake System (ABS) Performance Requirement"  
Federal Register Vol. 64, No. 244 December 21, 1999

The Heavy Duty Brake Manufacturers Council (HDBMC) members manufacture most of the commercially available US brake systems, antilock systems and the components of these systems for heavy trucks and busses. Our members include:

**Bendix** Commercial Vehicle Systems  
Brake Pro  
Carlisle Motion Control  
Dana Corporation  
Eaton Corporation  
Federal Mogul  
**Haldex** Brake Systems  
Meritor  
Meritor WABCO  
MGM

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These comments respond to the application of the proposed amendments to Class 6, 7 and 8 commercial vehicles with both hydraulic and air braked systems.

**The HDBMC agrees with the concept that braking-in-a-curve should apply to all single unit trucks & busses** that are regulated under FMVSS 105 and 121. Our comments concentrate on the technical issues of this proposal with a focus on data and processes that should assist the agency and others to assure compliance.

The preamble discussion mentions the agency's Motor Vehicle Safety Research Advisory Committee's ABS Task Force and their efforts to develop a brake-in-a-curve test for air braked tractors. HDBMC and the truck manufacturers participated in, and supported, that project. With expectations that the agency's task force might be disbanded, the members turned to the Society of Automotive Engineers (SAE) for a venue where this project could continue and they formed the SAE Vehicle Deceleration and Stability Subcommittee. The prime purpose of the subcommittee is to develop, validate, document and monitor the processes necessary to ensure compliance to FMVSS 121 and FMVSS 105 for heavy-duty vehicles. The product of these activities is SAE Recommended Practice (RP) J1626 "Braking, Stability and Control Performance Test Procedures for Air and Hydraulic Brake Equipped Trucks, Truck-tractors and Busses" which was most recently updated and validated in late 1999.

The significance of SAE J1626 is:

- The J1626 recommended practice was developed by the same individuals and organizations who participated in the government / industry cooperative research. They successfully addressed the practicability and repeatability mandate set down by the Ninth Circuit Appellate Court as prerequisite to the reinstatement of stopping distance and wheel lock regulations.
- The recently amended, SAE J1626 includes the appropriate test and measurement criteria for the classes of vehicles proposed in this NPRM.
- **SAE J1626 is the test protocol in use by both the vehicle manufacturers and the component suppliers to build the industry's compliance database including trucks and busses.**
- Many trucks and busses have already been tested for brake-in-a-curve performance using SAE J1626 and the performance requirements as proposed in this NHTSA notice.

• **HDBMC recommends the amendments to FMVSS 105 and FMVSS 121 include, wherever possible, the provisions of J1626.**

FMVSS 121 as amended in March of 1995, included the requirements to conform to both the laden (GVWR) and unladen (bobtail) conditions because of the limited amount of data available at that time. Subsequent development and compliance tests of both unladen and laden tractors and single unit vehicles confirm:

1. The worse case condition, when determining the stability of a vehicle during a brake-in-a-curve maneuver is unladen.
2. The 500 foot radius, wet ~~jenite~~, full / rapid brake application at 75% of drive through speed is a repeatable maneuver used to segregate vehicles and systems that do and do not meet the intent of the safety standards. It was not intended to duplicate highway operations.

We encourage the agency to have one-on-one discussions with our members and with the truck and bus builders to identify and collect the information needed for the agency to support **braking-in-a-curve unladen only for tractors, trucks and busses.**

The agency stated it will not conduct compliance tests on chassis cabs and will evaluate only final stage manufactured busses and trucks. GVWR testing of these “completed” vehicles is complicated by the type and placement of the load appropriate for the individual vehicle and the test does not provide any additional data about the stability system. **Testing in the unladen condition fulfills the needs of both government and-industry and results in no safety tradeoffs.** Deleting the loaded / GVWR test for all braking-in-a-curve makes sense technically.

Although not addressed in this notice, there is the overall safety issue of track testing any vehicle with a high center of gravity. The 60mph stopping distance test is intended to evaluate the robustness of the brake system. The experiences and results of tractor-trailer testing during the FMVSS 121 stopping distance reinstatement rulemaking resulted in the requirement that the center of gravity (CG) of the load not exceed 24 inches above the tractor fifth wheel.

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The stopping distance reinstatement rulemaking covering air braked trucks and hydraulic braked vehicles had phased effective dates to allow for development and qualification of these systems and vehicles. In the absence, of a NHTSA specified center of gravity for these vehicles, tests were conducted using the tractor-trailer as a model. Government and industry testing of single unit trucks confirmed the tractor-trailer test track load criteria should also apply to trucks. The FMVSS 121 maximum CG requirement of 24 inches above the **fifth** wheel equates to 32 inches above the frame rails (chassis) considering the typical frame to top of fifth wheel is eight inches. **HDBMC recommends a 32-inch maximum center of gravity for any GVWR tests.**

In summary, HDBMC recommends the agency:

- Promulgate braking-in-a-curve **where** appropriate.
- Use SAE J1626 as a model wherever possible.
- Test unloaded only for braking-in-a-curve.
- Set the maximum load CG at 32 inches for 60 mph tests:.

Respectfully Submitted, February 18, 2000

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